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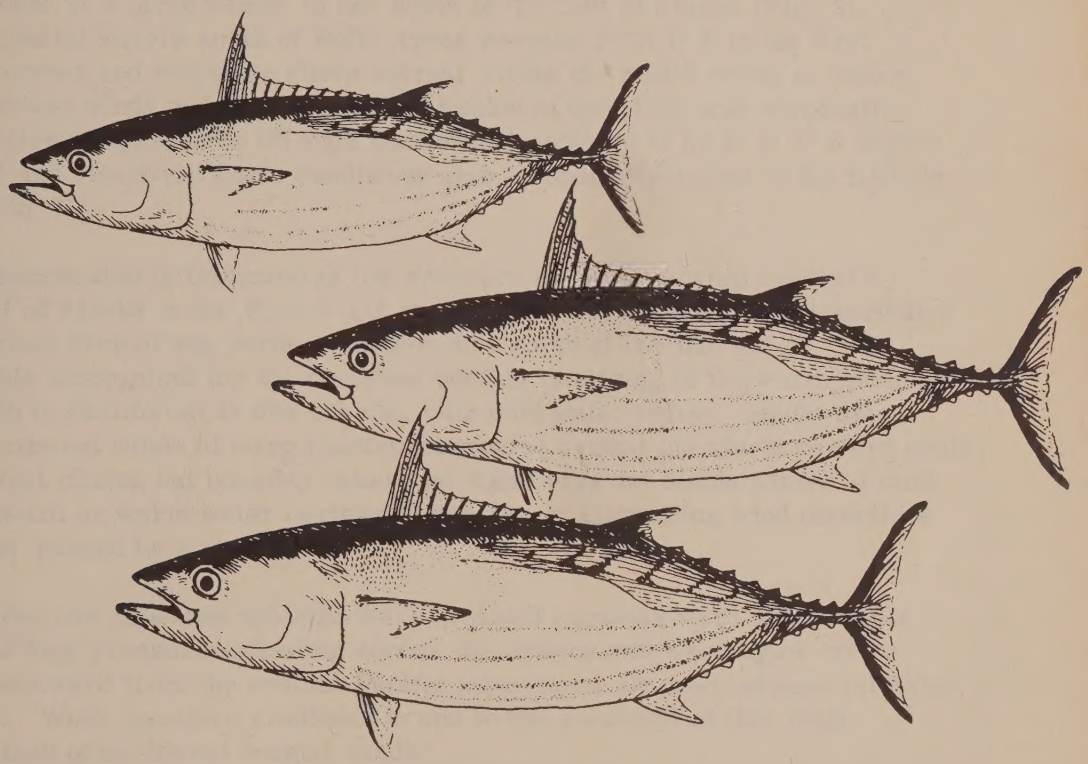
SEPTEMBER 1971

FISHING INFORMATION

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



NATIONAL
MARINE
FISHERIES
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LA JOLLA,
ALIFORNIA

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

UNITED STATES DEPARTMENT OF COMMERCE

FISHING INFORMATION

SEPTEMBER 1971

NARRATIVE DESCRIPTION OF OCEAN TEMPERATURE CONDITIONS

Northeastern Pacific

Sea surface temperatures north of latitude 40° N cooled sufficiently in September 1971 to neutralize the relatively warm conditions existing in August along the North American coast, and to increase negative deviations from the long term mean in a large region in and south of the Gulf of Alaska (Fig. 3). California coastal waters south of Point Arena warmed 2° to 4° F in the first part of September and remained above normal during the month owing to lack of strong northwest winds and a consequent reduction of upwelling and evaporative cooling. Water temperatures off Baja California continued to be 2° to 4° F higher than normal and relatively warm conditions also extended westward in the latitude zone 25° to 35° N.

A succession of intensifying low pressure systems moving eastward into the Gulf of Alaska in the first 2-1/2 weeks of the month must have contributed to the abnormal drop of sea surface temperature north of latitude 40° N. The most probable mechanism for the observed cooling is mixing of the warm surface water, which is shallowest at this season, with cold water below. Southwest, west and northwest winds blowing counter-clockwise around the storm centers could induce vertical mixing but possibly caused no significant net displacement of cold water southward or warm water northward because of alternating wind directions as the storm passed by a given area.

These low pressure systems were diverted northeastward over Alaska by a ridge of high pressure extending across the Oregon and Washington coastlines northeastward from the central Pacific anticyclone situated between latitudes 30° to 40° N. Weak pressure gradients in and to the southeast of this ridge explain the lack of northwest coastal winds.

During the last 10-12 days of September, high pressure became established in and near the Gulf of Alaska, centered at first near 135° W longitude between latitudes 50° N and 55° N, and gradually shifting south and west. Strong gradients in the northeast sector maintained moderate to strong northwest winds along Oregon, Washington, and British Columbia, causing cooling of coastal waters by increased evaporation. The high pressure system also blocked two very intense cyclonic storms which developed to full maturity about a week apart in the vicinity of latitude 50° N, longitude 175° E. Strong southerly winds occurred in the eastern sectors of these two slow-moving systems causing advection of warm water northward through stress action. The effect of this anomalous warming is evident in the positive departures from normal which exceed 4° F west of longitude 170° W between latitudes 35° N and 45° N (Fig. 3). The southward bulge of the 60° F

to 70° F isotherms west of longitude 175° E (Fig. 2) suggest the occurrence of cold water advection by strong northerly winds in the western sectors of the cyclonic systems.

Eastern Tropical Pacific

The sea surface temperature distribution for September 1971, in the warm water invariably found off Central America, shows a confused pattern of relatively warm and cold patches resulting from small scale weather disturbances (Fig. 5). The pattern is typical for September when the tropical storm season nears an end. Temperatures adjacent to the coast and westward to 135° W longitude between latitudes 5° and 10° N continue to be generally above normal (Fig. 6). The region surrounding and south of the Revillagigedo Islands is colder than normal but the magnitude of negative departures are smaller than in August. Conditions along the equator westward to 170° W are also similar to August in the continuing trend of below normal temperatures. The cold conditions are not, however, as pronounced in equatorial areas as they were in September of last year (Fig. 7). No new developments of significance are evident in the pattern of anomalous temperature which appears, instead, to be reverting toward normal. This relaxation of the temperature field may be a reflection of decreasing activity in the intertropical convergence zone, which spawned only one major tropical storm in September. Moreover, near normal conditions of wind and cloudiness prevailed during the month over much of the eastern tropical Pacific.

SEA SURFACE TEMPERATURE CHARTS, PACIFIC OCEAN

SEPTEMBER 1971

Acknowledgements

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Hopkins Marine Station, Pacific Grove, California, J. P. Balesteri
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National Marine Fisheries Service, Biological Laboratories La Jolla, California; Honolulu, Hawaii; Seattle, Washington
National Weather Service, San Diego, California
National Ocean Survey, Pacific Marine Center, Seattle, Washington
Oregon State University, Department of Oceanography, Corvallis, Oregon
Pacific Environment Institute, Fisheries Research Board of Canada West Vancouver, British Columbia, by H. J. Hollister from observations; D. Smith at Langara Island; D. C. Robinson at Cape St. James Light; Lilly Collins at Kains Island Lightstation; O. A. Edwards at Amphitrite Point Light
Scripps Institution of Oceanography, La Jolla, California, by Margaret Robinson
University of Washington, Seattle, Washington; R/V THOMAS THOMPSON
U. S. Naval Weather Service, Fleet Numerical Weather Central, Monterey, California
Fishing Vessels ANTONINA C, CONQUEST, DENISE MARIE, EASTERN PACIFIC, KATHLEEN, KERRI M, LOU JEAN II, MARIETTE, MARY ANTIONETTE, GINA KAREN, INDEPENDENCE, MARY BARBARA, MERMAID, TYPHOON, VIVIAN ANN

Charts

Figure 1.--Mean sea surface temperature, eastern north Pacific Ocean. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 2.--Mean sea surface temperature chart, western north Pacific Ocean.

Figure 3.--Deviation of sea surface temperatures, eastern north Pacific Ocean from long term charts of H. O. 225. Hatched areas are colder in 1971.

Figure 4.--Deviation of sea surface temperatures, eastern north Pacific Ocean from those of September 1970. Hatched areas are colder in 1971.

Figure 5.--Mean sea surface temperature, eastern tropical Pacific Ocean. Numerals on shore are temperatures at coastal stations.

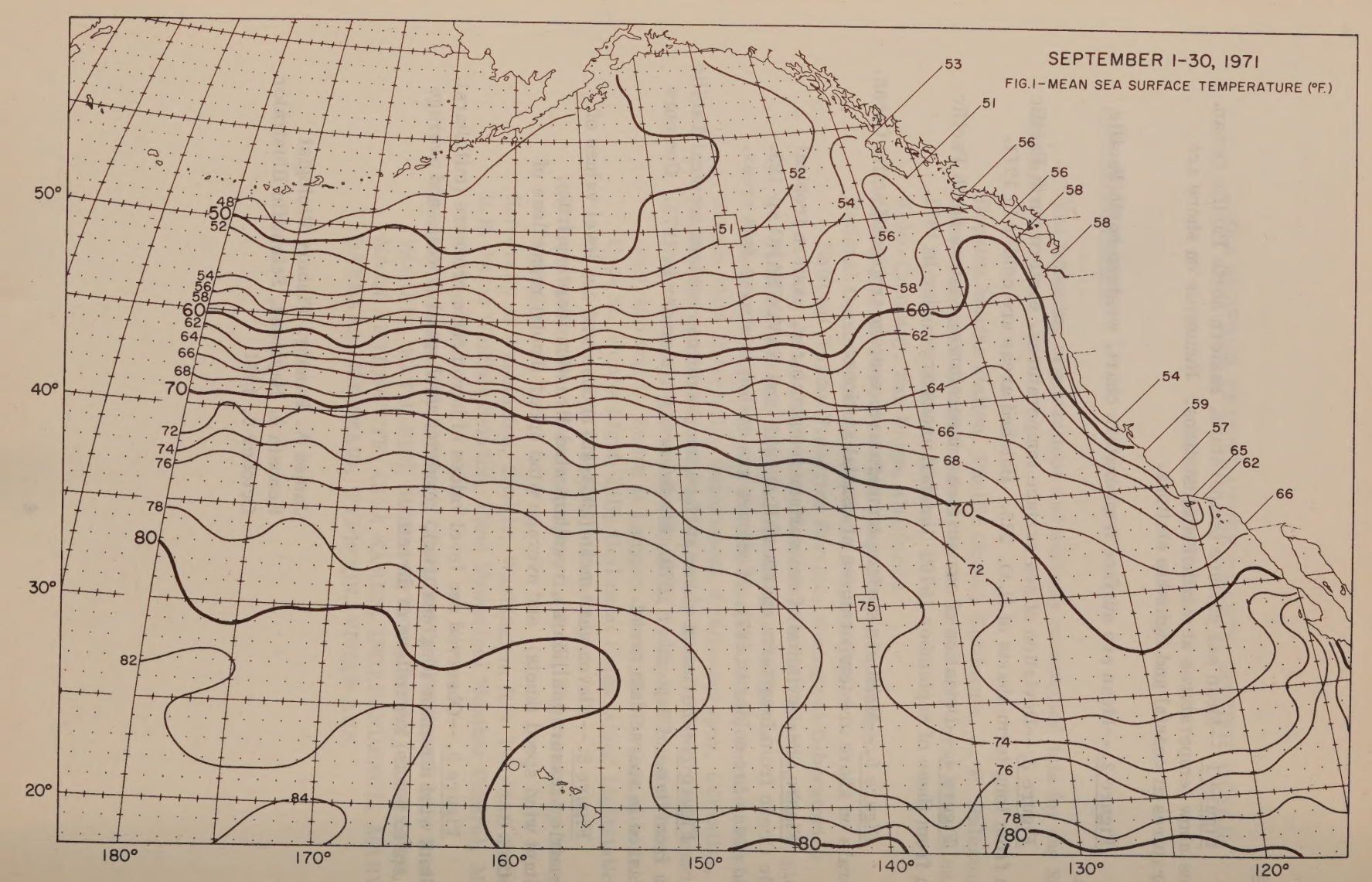
Figure 6.--Deviation of sea surface temperatures, eastern tropical Pacific Ocean from long-term charts of H. O. 225 and NAVOCEANO sp-123. Shaded areas are colder in 1971. Contours are dashed in sparse data areas.

Figure 7.--Deviation of sea surface temperatures, eastern tropical Pacific Ocean from those of September 1970. Shaded areas are colder in 1971. Contours are dashed in sparse data areas.

Figure 8.--Eleven year mean (1961-1971) observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots), and average wind speed (knots) regardless of direction.

Figure 9.--Observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots), and average wind speed (knots) regardless of direction.

James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator
October 6, 1971


SEPTEMBER 1-30, 1971
FIG.1-MEAN SEA SURFACE TEMPERATURE (°F.)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
51
75
53
51
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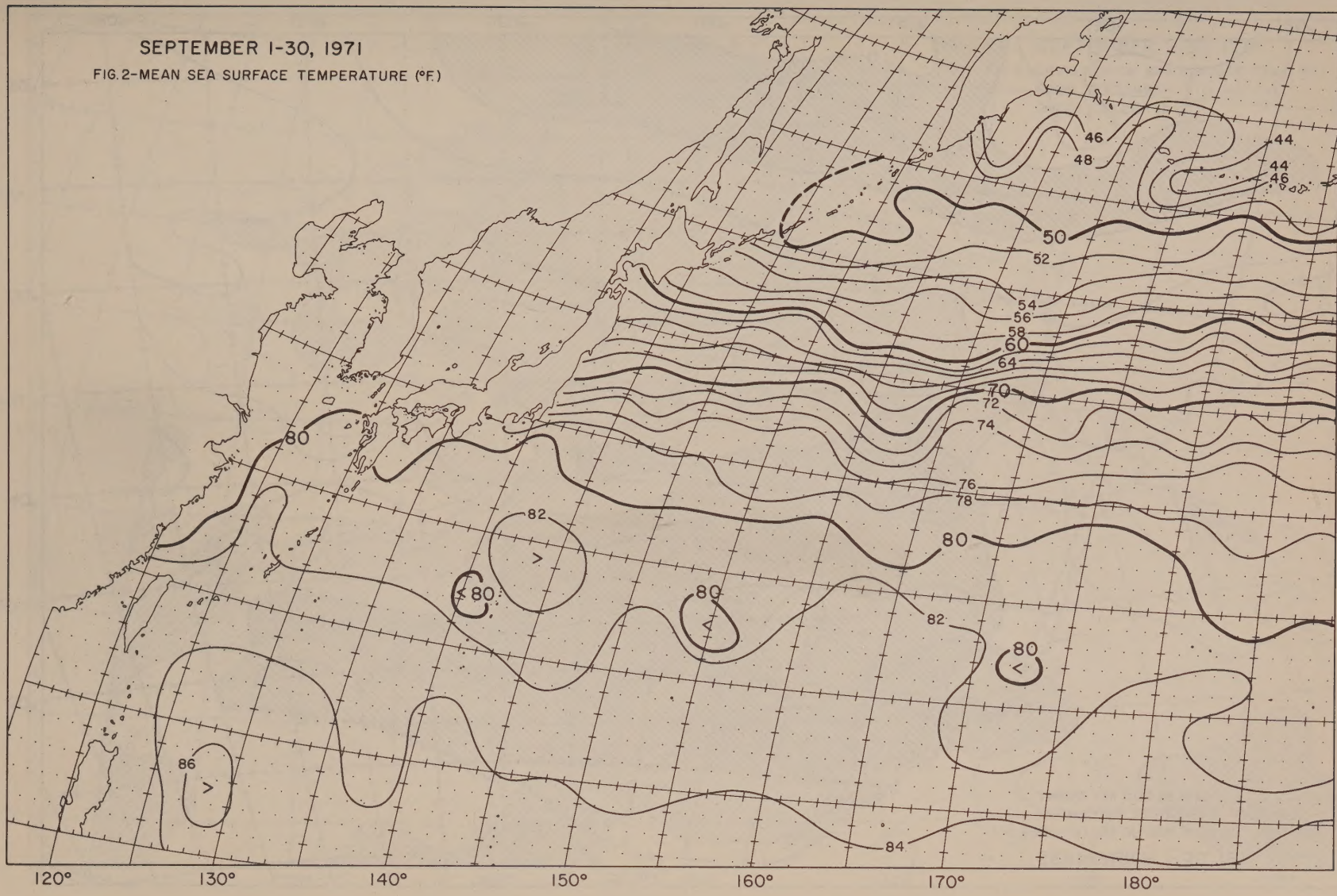
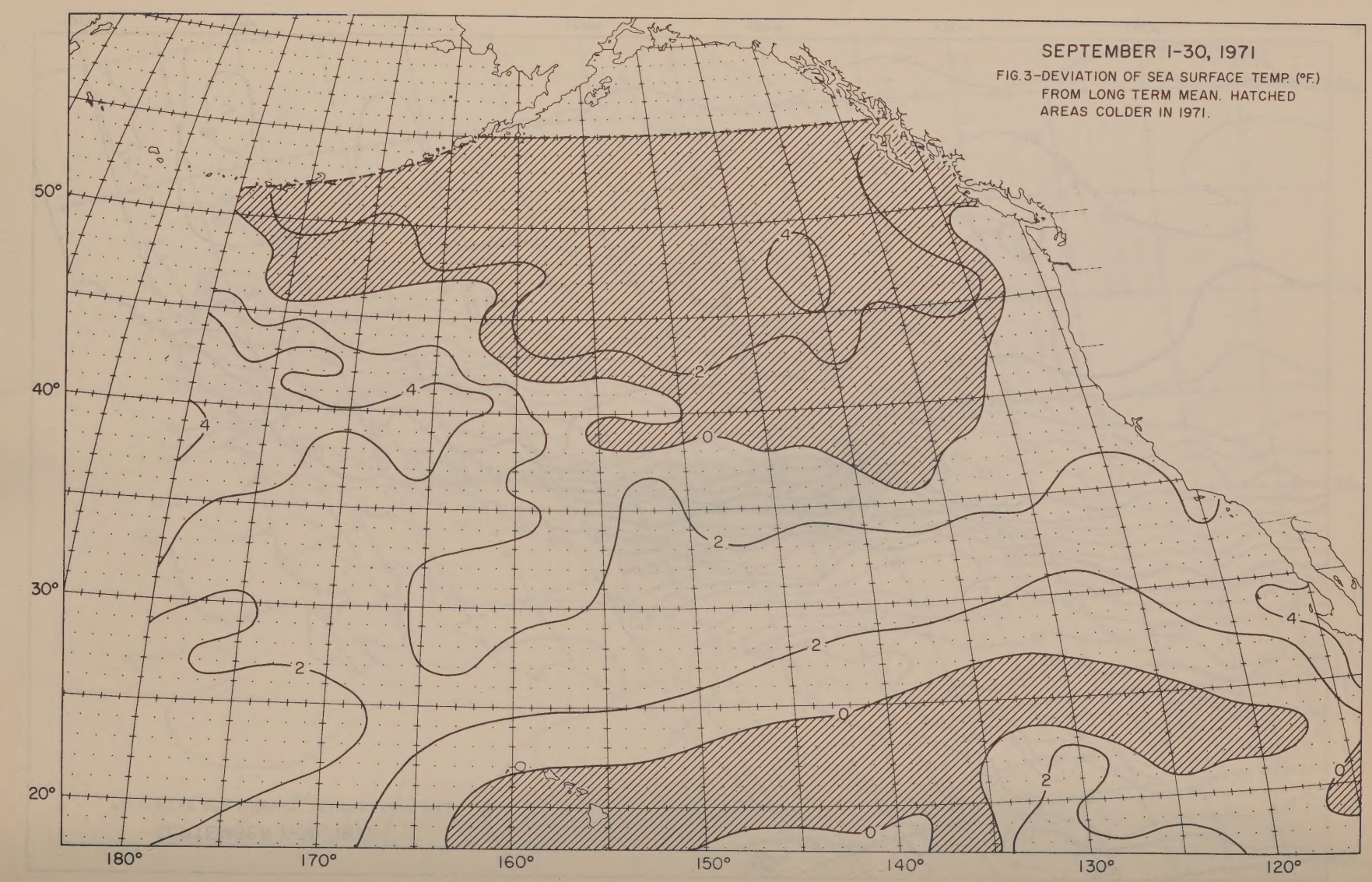
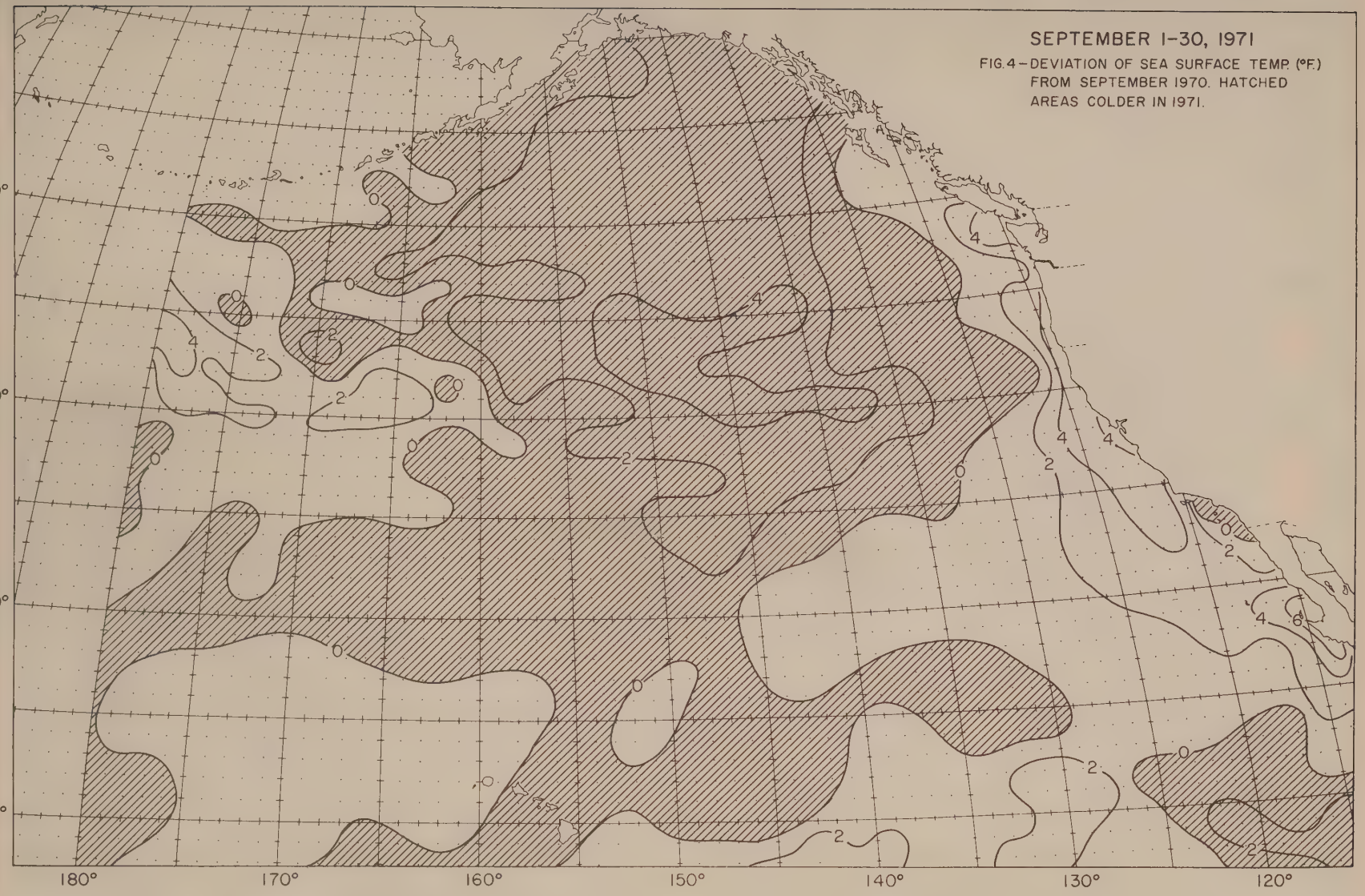
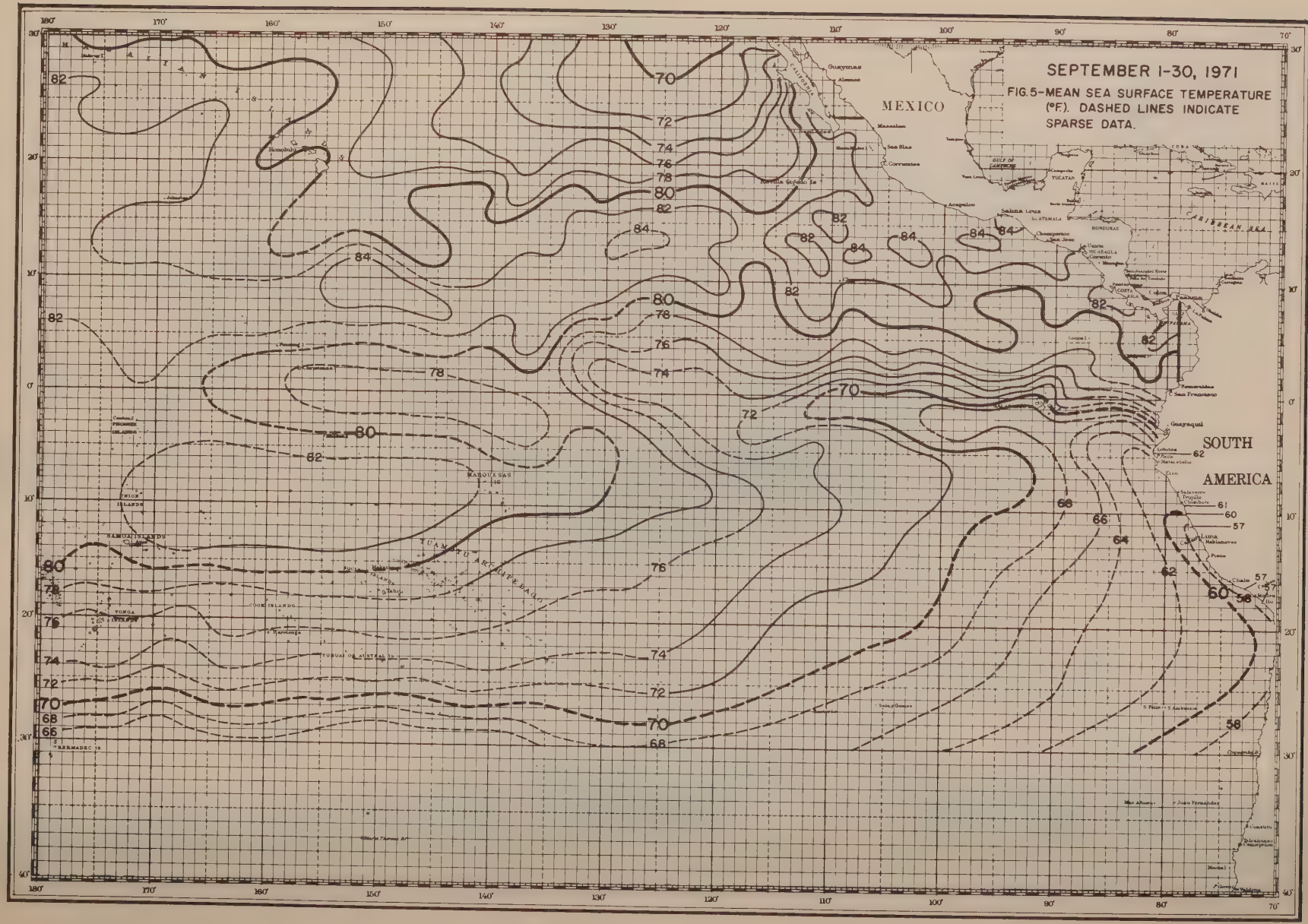
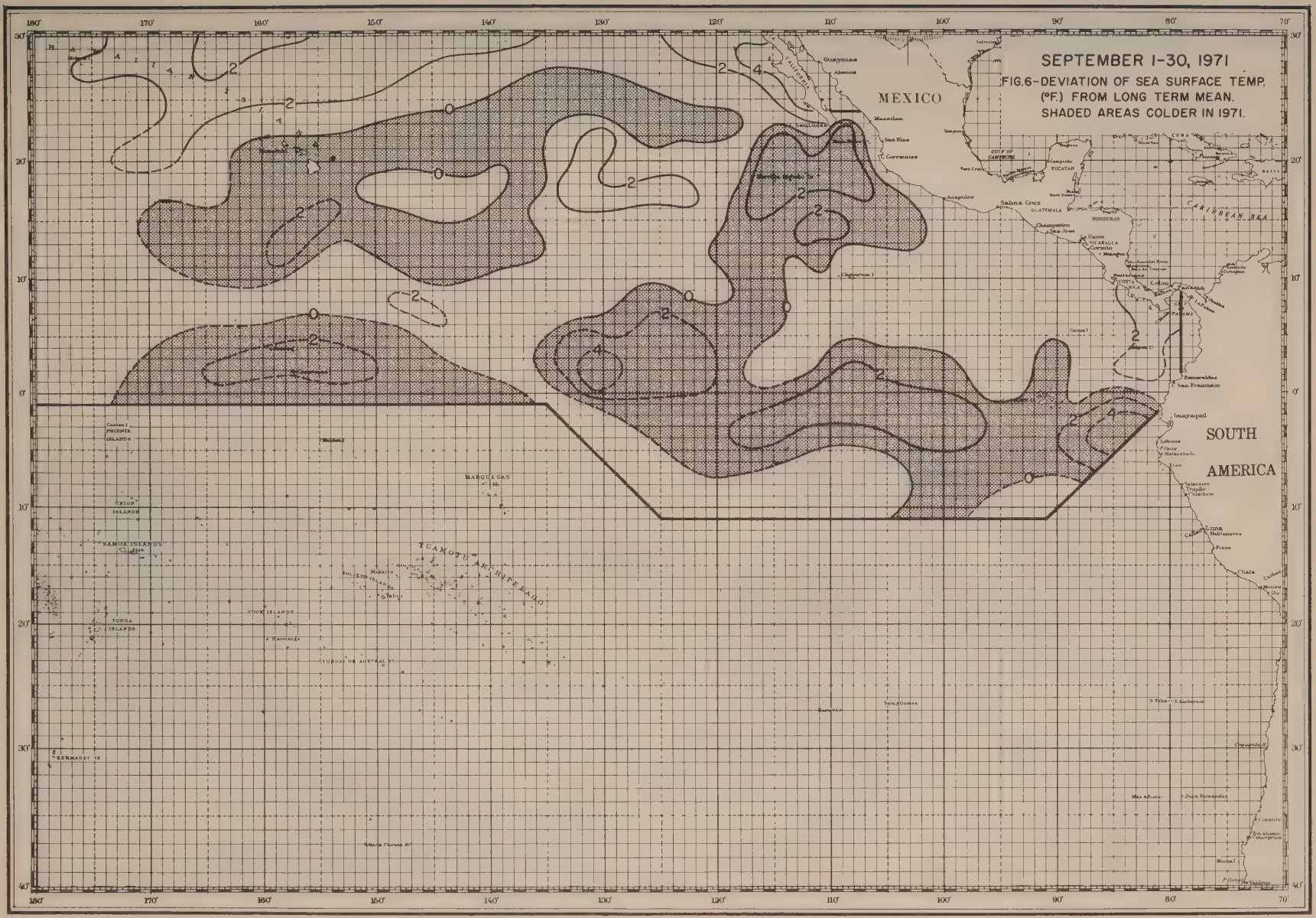
54
59
57
65
62
66

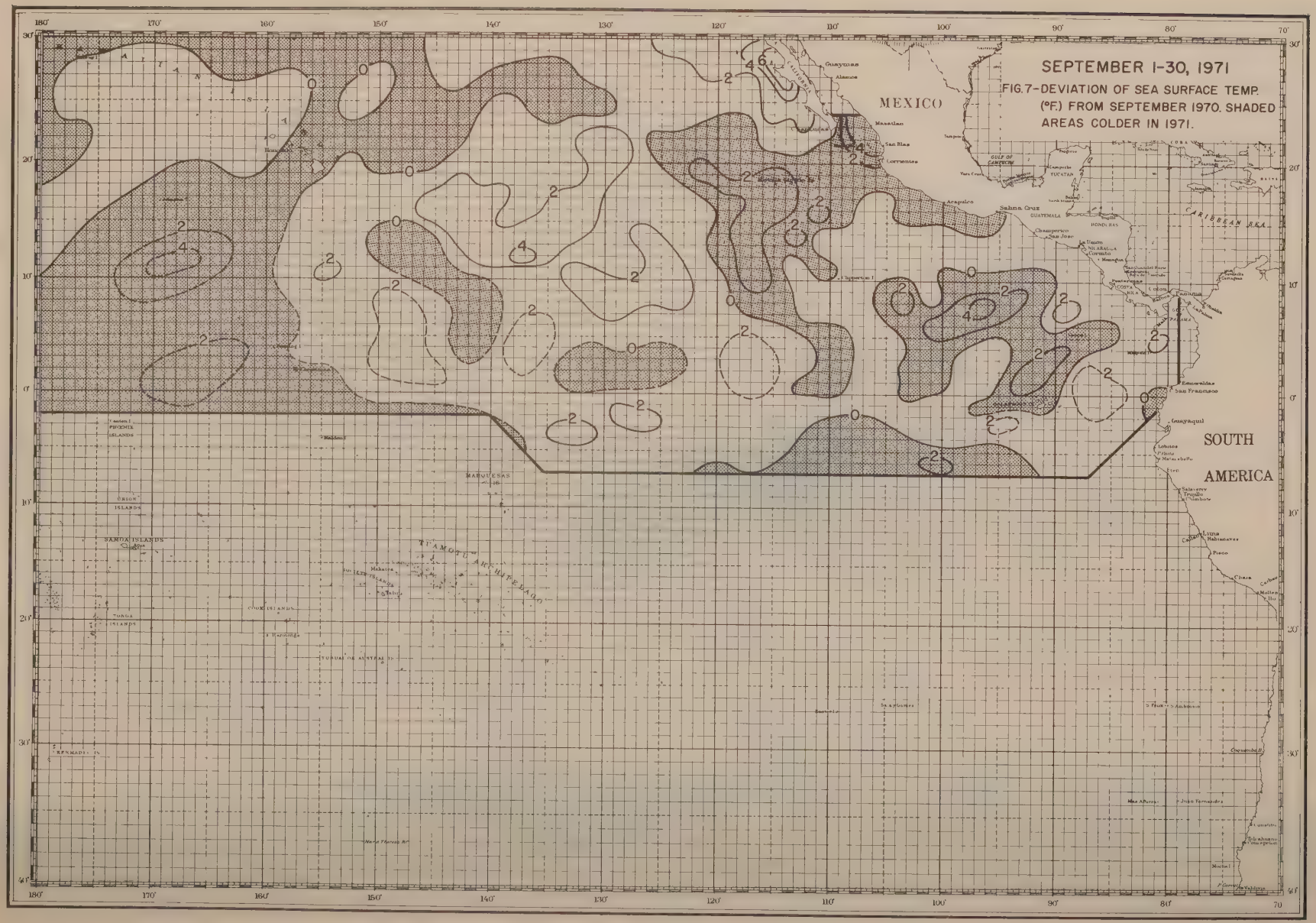

SEPTEMBER 1-30, 1971
FIG. 2-MEAN SEA SURFACE TEMPERATURE (°F.)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
46
48
44
44
46
50
52
54
56
58
60
64
70
72
74
76
78
80
82
80
80
82
80
86
84

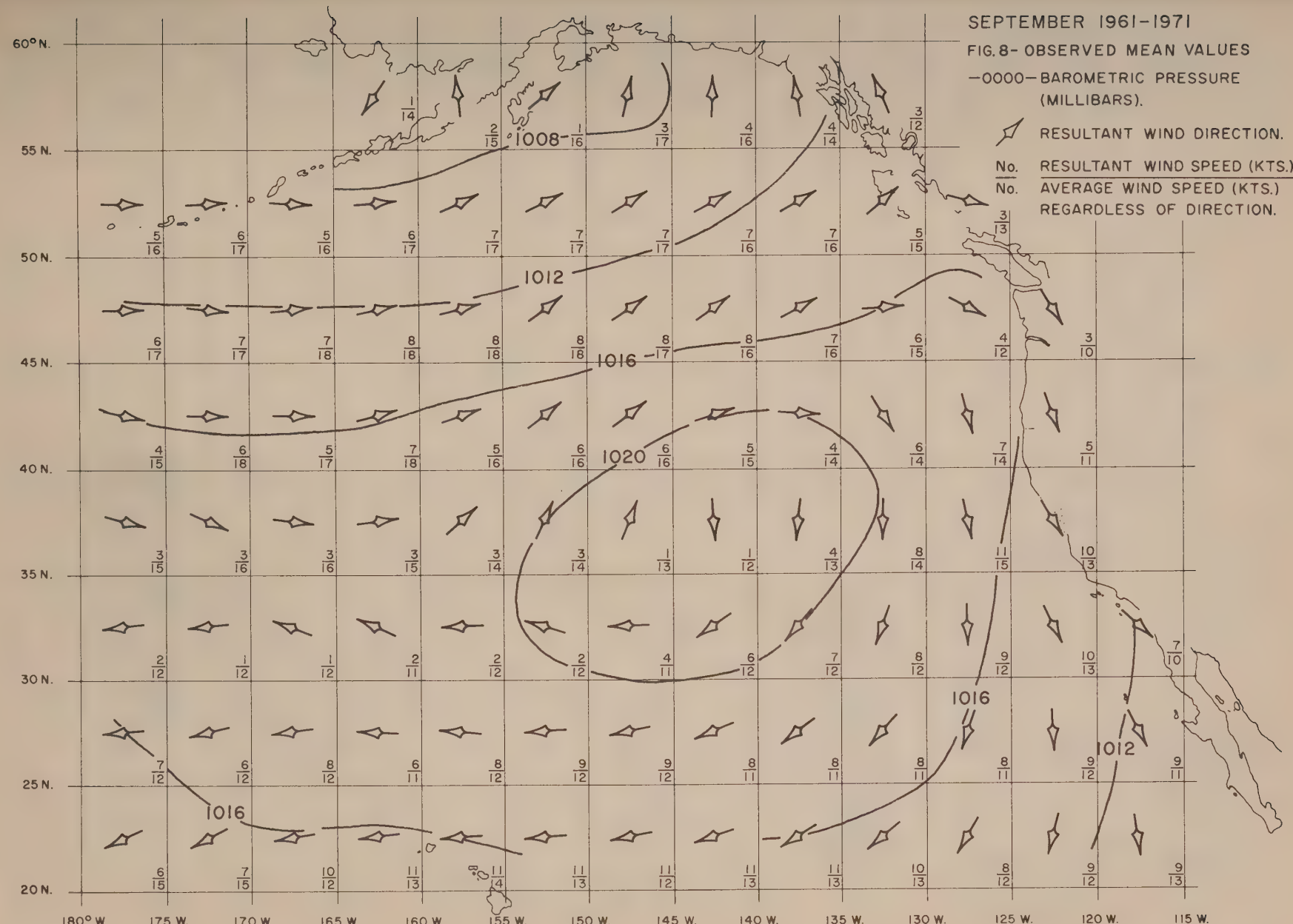

SEPTEMBER 1-30, 1971
FIG. 3-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1971.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
4
2
0
4
4
2
2
4
2
0
0
2
0

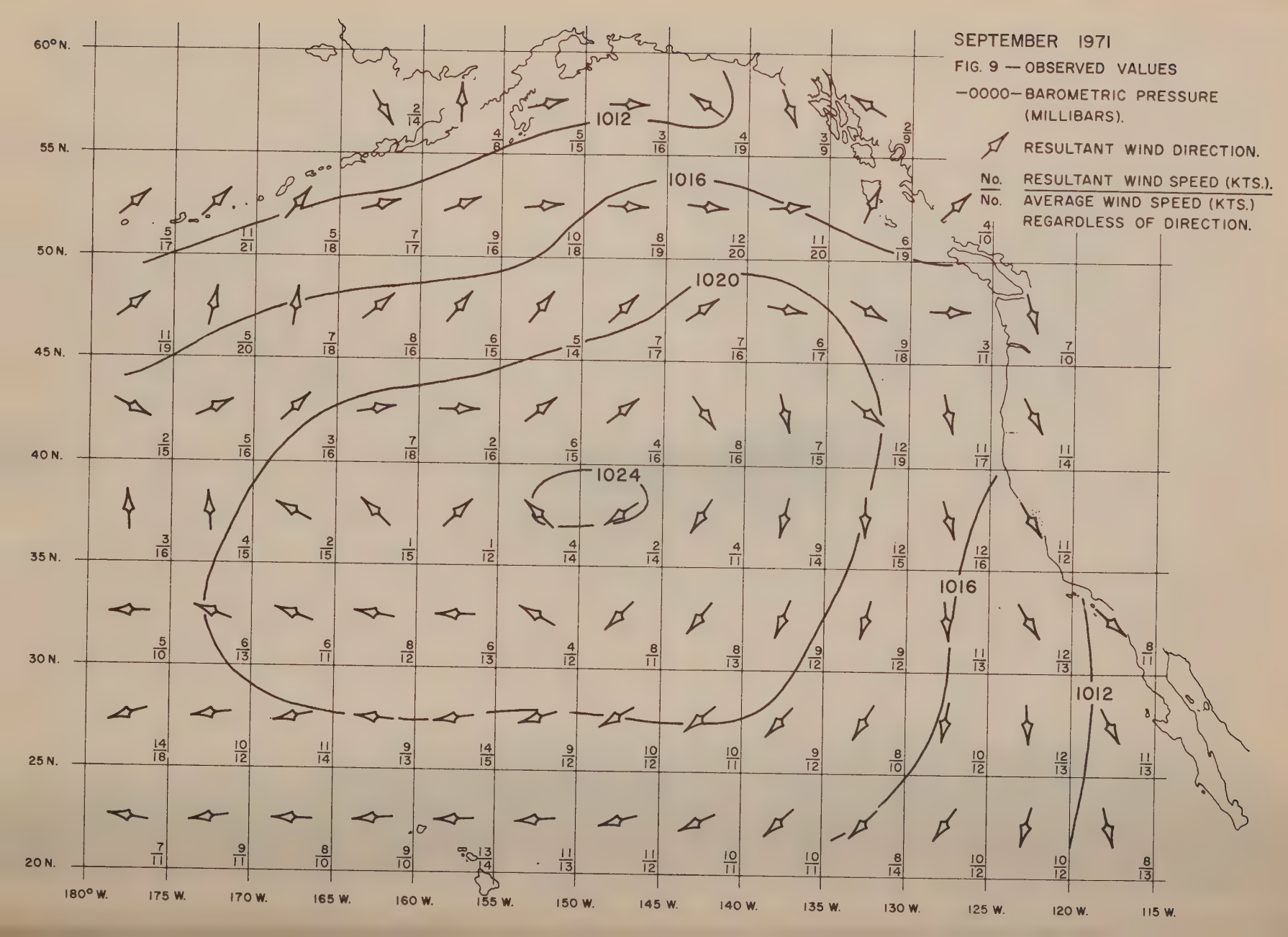

SEPTEMBER 1-30, 1971
FIG. 4 – DEVIATION OF SEA SURFACE TEMP. (°F.) FROM SEPTEMBER 1970. HATCHED AREAS COLDER IN 1971.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

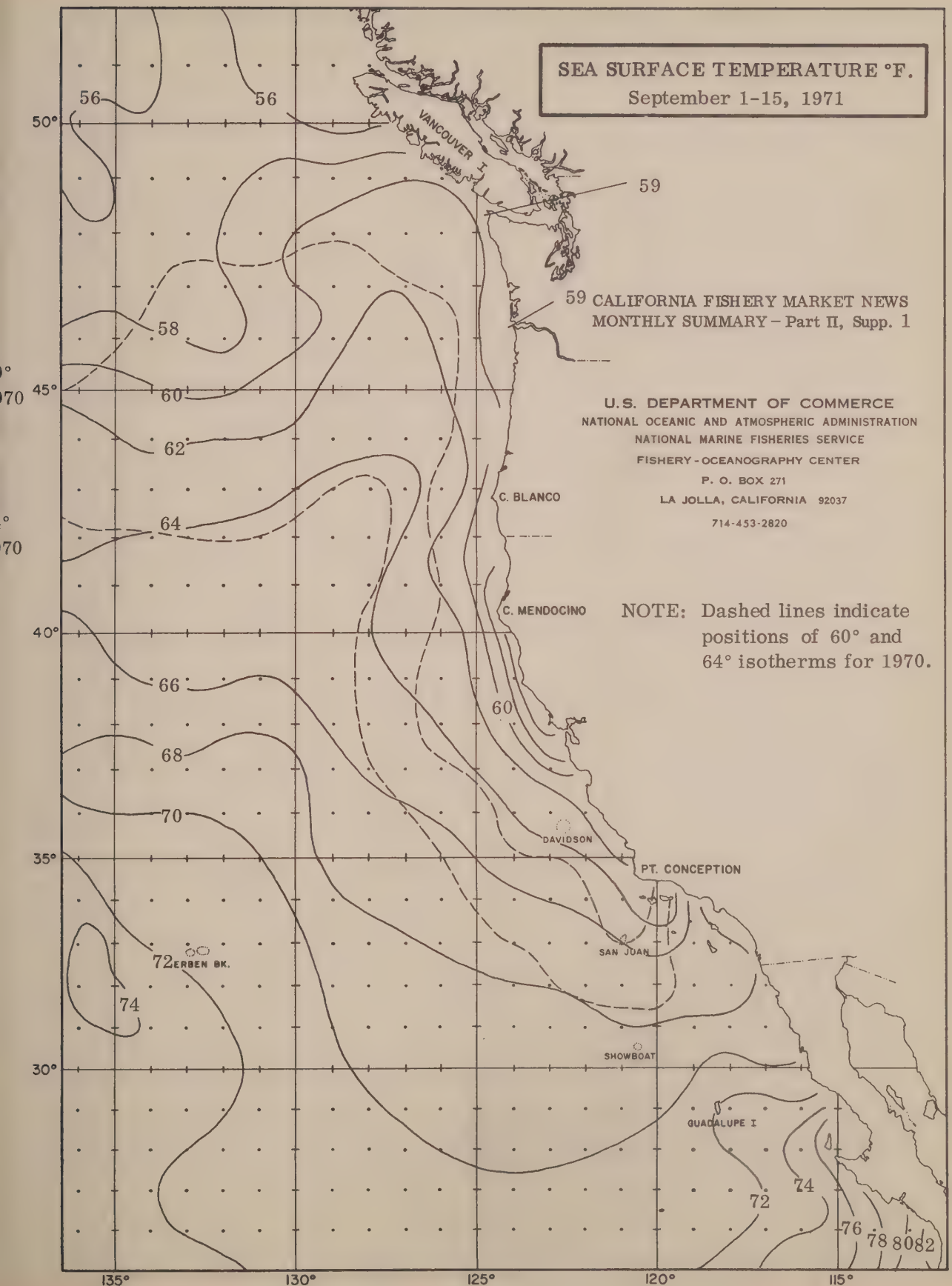

SEPTEMBER 1-30, 1971
FIG. 5-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
HAITI
TUCATAN
GUATEMALA
MARQUESAS IS.
SAMOA ISLANDS
COOK ISLANDS
TONGA
TUAMOTU ARCHIPELAGO
BERMADEC IS.
Guaymas
Mazatlan
San Blas
Acapulco
Salina Cruz
Guayaquil
San Francisco
Tamarindo
Callao
Lima
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Talcahuano
Juan Fernandez
Easter I.
Tahiti
Papeete
Pitcairn I.
Tubuai Is. Australes Is.
Samoa
Fanning I.
Christmas I.
Cocos I.
Malpelo I.
Gorgona I.
Gallapagos Is.
Chanchamayo
Huancayo
Mollendo
Matarani
Ilo
Pisco
Chimbote
Salaverry
Trujillo
Lobitos
Talara
Manzanillo
Acapulco
Zihuatanejo
Salina Cruz
Tapachula
Champerico
San Jose
Corrientes
Guaymas
Almejas
Magdalena
Cabo San Lucas
Ensenada
Punta Eugenia
Socorro I.
Clarion I.
Revilla Gigedo Is.
Hawaiian Is.
Honolulu
Johnston I.
Palmyra I.
Canton I.
Phoenix Islands
Samoa Islands
Tuamotu Archipelago
Tubuai Is. Australes Is.
Bermadec Is.
Juan Fernandez
Mas Afuera
Mas a Tierra
Easter I.
Pitcairn I.
Gallapagos Is.
Malpelo I.
Gorgona I.
Cocos I.
Christmas I.
Fanning I.
Palmyra I.
Johnston I.
Canton I.
Clarion I.
Socorro I.
Revilla Gigedo Is.
Hawaiian Is.
Honolulu

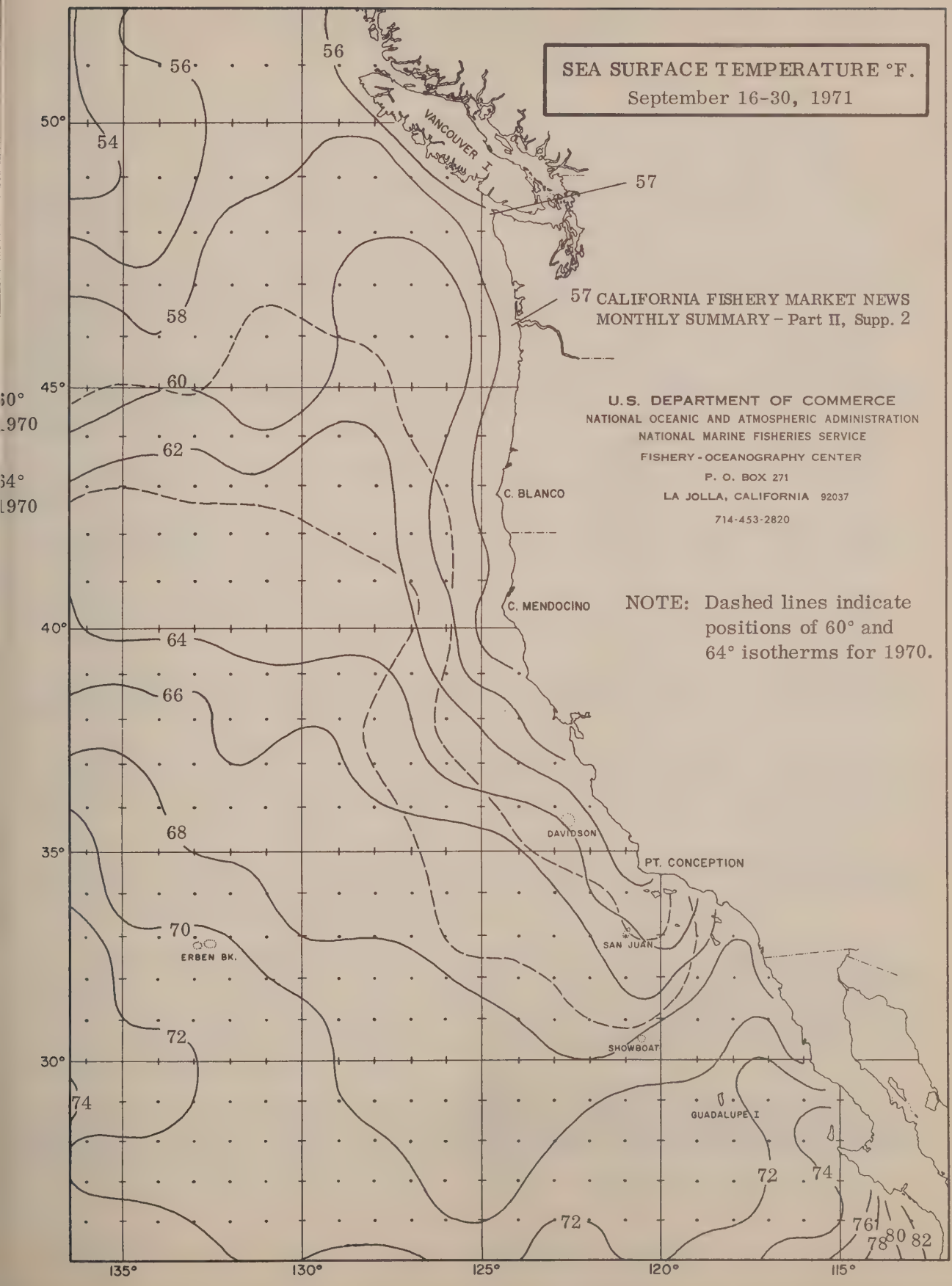

SEPTEMBER 1-30, 1971
FIG.6-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN.
SHADED AREAS COLDER IN 1971.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
MARQUESAS
SAMOA ISLANDS
TONGA ISLANDS
COOK ISLANDS
TUAMOTU ARCHIPELAGO
BERMADEC IS
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°


SEPTEMBER 1-30, 1971
FIG.7-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM SEPTEMBER 1970. SHADED AREAS COLDER IN 1971.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
MARQUESAS
SAMOA ISLANDS
TUAMOTU ARCHIPELAGO
COOK ISLANDS
TONGA ISLANDS
KERMADEC IS.
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°
40°


SEPTEMBER 1961-1971
FIG. 8- OBSERVED MEAN VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1008
1012
1016
1020
1016
1012
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


SEPTEMBER 1971
FIG. 9 — OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1024
1016
1012
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


SEA SURFACE TEMPERATURE °F.
September 1-15, 1971
CALIFORNIA FISHERY MARKET NEWS
MONTHLY SUMMARY – Part II, Supp. 1
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
FISHERY-OCEANOGRAPHY CENTER
P. O. BOX 271
LA JOLLA, CALIFORNIA 92037
714-453-2820
NOTE: Dashed lines indicate positions of 60° and 64° isotherms for 1970.
VANCOUVER I
C. BLANCO
C. MENDOCINO
DAVIDSON
PT. CONCEPTION
SAN JUAN
SHOWBOAT
GUADALUPE I
ERBEN BK.
56
58
59
60
62
64
66
68
70
72
74
76
78
80
82
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°


SEA SURFACE TEMPERATURE °F.
September 16-30, 1971
CALIFORNIA FISHERY MARKET NEWS
MONTHLY SUMMARY – Part II, Supp. 2
U.S. DEPARTMENT OF COMMERCE
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NATIONAL MARINE FISHERIES SERVICE
FISHERY-OCEANOGRAPHY CENTER
P. O. BOX 271
LA JOLLA, CALIFORNIA 92037
714-453-2820
NOTE: Dashed lines indicate positions of 60° and 64° isotherms for 1970.
VANCOUVER I.
C. BLANCO
C. MENDOCINO
DAVIDSON
PT. CONCEPTION
SAN JUAN
SHOWBOAT
ERBEN BK.
GUADALUPE I.
50°
45°
40°
35°
30°
135°
130°
125°
120°
115°
54
56
57
58
60
62
64
66
68
70
72
74
76
78
80
82

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Fishery-Oceanography Center
La Jolla, California 92037

BULLETIN NO. 71-6

ALBACORE FISHING OFF CENTRAL CALIFORNIA HAMPERED BY ROUGH WEATHER

Albacore fishing slowed along the central California coast during the past 2 weeks because of rough weather conditions. Sea conditions began to deteriorate on September 3 and by September 5 most boats had been forced into central California ports. However, prior to the time that inclement weather set in, good fishing was reported mainly in the area from Lopez Point to the Farallon Islands with baitboats averaging 700-800 fish per day during the first week of the month and some jig boats with high scores of more than 400 fish on September 5. The fish averaged 12-15 pounds with best catches made in 61°-62° F water. Most of the fleet remained in port until September 9 when they moved back to the fishing grounds near Guide and Pioneer Seamounts and 20 miles west of the Farallon Islands. Jumping albacore were seen and inshore water temperatures had dropped from 61°-62° F to 57°-58° F. Increasing winds on the 10th of September forced many boats back to port, but boats that remained at sea had high scores of 100-130 fish on September 13 and 14. Most boats left port to return to the fishing grounds on September 15.

Commercial fishing on albacore in southern California waters was very poor as were the sport catches by San Diego based boats, however, sport boats had moderate scores on some days earlier in the month.

Northern California was also affected by inclement weather. Some catches were made, however, with one boat reporting more than 100 fish on September 6 and 7, about 100-150 miles west of Crescent City. A score of 90 fish was also reported from near shore Crescent City on September 5.

The Oregon and Washington vicinity had very little fish landed this past 15 days and more bait boats left this area. However, a small number of jig boats recorded some days of good fishing off Cape Scott, Vancouver Island early in the month.

The NMFS Seattle laboratory's JOHN N. COBB, which is on a research cruise studying Pacific saury, reported catching seven albacore on September 12 while trolling three lines for 10 hours about 80-100 miles offshore a few miles north of Grays Harbor. COBB reported rough sea conditions and little sign of albacore.

Although seasonal cooling has begun to decrease sea surface temperatures north of 40° N, waters offshore northern, central and southern California warmed 2°-4° F during the first 15 days in September. This warming, which was most pronounced between Point Arena and Point Arguello, is due to less frequent periods of strong winds and upwelling and has decreased the horizontal gradients of sea surface temperature in offshore regions between Point Reyes and Point Sur.

The average positions of the isotherms for the first 2 weeks of September show that temperatures were still above 60° F along the coast from Cape Flattery to Cape Blanco and southward of the Monterey Bay area. Although nearshore waters off southern California and northern Baja California cooled by as much as 2° F, temperatures are still above 67° F in most offshore areas and are reflected in the very poor sport and commercial albacore fishing.

According to the Extended Forecast Division of the National Weather Service, the high pressure ridge over the eastern Gulf of Alaska and Pacific Northwest that has been a predominant feature of the average weather conditions during the first 2 weeks in September is expected to persist through mid-October. Consequently, intense storm systems that develop in the Gulf of Alaska should not affect the Pacific Northwest, although occasional weak weather fronts will move inland over its coastal regions. The position of the ridge is also expected to create favorable conditions for the development of Santa Ana-type wind patterns over southern and central California, resulting in decreased northwesterly winds and better sea conditions offshore central California.

The center of the fishing activity for the next 15 days is expected to remain in the central California district. However, fishing off Monterey is not expected to resume at as high a level as it was during the last 2 weeks in August. The best fishing should be south of Monterey to Point Arguello. Scattered good fishing may also be expected off northern California when weather conditions are favorable.

September 15, 1971

Staff, Fishery-Oceanography Group
R. Michael Laurs, Leader

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92037

BULLETIN NO. 71-7

ALBACORE FISHERY REMAINS OFF CENTRAL CALIFORNIA, BUT CATCHES LOW

The albacore fishery remained centered off central California from Lopez Point to Monterey Bay during the last 2 weeks of September. However, fishing effort by bait and jig boats decreased because of spotty fishing and many low scores. Jig boats worked from 10-135 miles off the coast and averaged 50-100 fish per day per boat for the past 2 weeks. High scores were about 75-500 on fish of 7-25 pounds. Albacore caught on September 19 averaged 14-15 pounds and were taken in 65° F waters about 120 miles offshore. On the 22nd and 24th boats reported catching many 7-9 pound fish and reported many fish less than 7 pounds.

Some catches were also made during the last 2 weeks off Punta Gorda near the Gorda Seavalley and Point Arena. However, there were only a few days when boats had better than 50 fish. On the 19th one jig boat had 55 fish in 3 hours of fishing nearshore Punta Gorda and boats reported catching 75-100 fish off Point Arena that same day. On the 24th, 76 fish were caught near the Gorda Seavalley by one boat.

Some fish were also caught 40-50 miles west of Avila Beach during the third week of the month. There were no catches reported in southern California waters. One jig boat coming to San Diego fished briefly in the vicinity of San Juan Seamount without success.

The Pacific Northwest area had some fishing from Newport, Oregon to Westport, Washington. Average scores have been about 15-20 fish per boat when weather permitted fishing. On the 20th and 21st jig boats averaged 20-30 fish off Newport and one bait boat caught 150 fish one day off Grays Harbor. High counts for jig boats were 100 or better near the Totem buoy, but fishing was spotty. Some jig fishing was also reported off Vancouver Island during the past 2 weeks, but complete information on scores is not available.

About 9,000 tons of albacore were landed during September, mostly during the first 2 weeks when boats came into ports because of rough seas and unloaded fish caught in late August. The landings total for the season is approximately 21,000 tons, which is about 3,000 tons more than was landed last year at this time. About two-thirds of the albacore landed thus far this season has been landed in California ports. Albacore landings in Canada this season total about 1,500 tons which is more than double total landings for last year and reflects the increased fishing effort this year by Canadian vessels.

The normal pattern of seasonal cooling that occurs during September is reflected in the decrease of sea surface temperatures in most offshore areas between 30°-50° N and from the coast out to 135° W. However, frequent periods of strong northerly winds have caused temperatures between Cape Blanco and Point Arena to cool by as much as 2° F above the normal rate. Temperatures offshore the Pacific Northwest also cooled more than normal due to the passage of weather fronts accompanied by strong winds which increased the rate of evaporation between ocean and atmosphere. Temperatures between Point Arena and Point Arguello remained 2° F above normal during the last 2 weeks in September due to a lack of strong northwesterly winds needed to produce evaporative cooling and upwelling. This lack of upwelling has caused sharp ocean temperature frontal features to disappear in this area, and may account for the spotty albacore fishing off central California during the last 2 weeks.

The Extended Forecast Division of the National Weather Service expects that an upper level pressure trough offshore the west coast of Canada and the U.S. Pacific Northwest will be a prominant feature of the average weather pattern during the first 2 weeks of October. With an upper level trough in this position and the Gulf of Alaska surface low pressure cell farther south than normal, storm systems and associated frontal zones are expected to affect areas offshore the Pacific Northwest and move southward down the coast to the Point Conception area. Consequently, offshore areas along the entire U.S. west coast can expect to have more frequent periods of west to southwesterly winds and rough seas than normal during the first half of October.

The albacore fishery is expected to remain in central California during the next 2 weeks. However, fishing will probably remain spotty unless horizontal temperature gradients or "fronts" are set up. Tuna food organisms are usually high in areas of temperature "fronts" and tuna aggregate there because of good feeding conditions. Temperature fronts often form along the coast as a result of ocean processes related to northerly winds.

The American Fishermen's Research Foundation (AFRF) was recently established by the albacore tuna fishing industry to administer a fund derived from the $10/ton assessment paid by the canners on albacore landed by U.S. fishermen which will be used for albacore research and scouting activities. Four albacore jig vessels (TYPHOON, WENDY, JINITA and ALEUTIAN) will be chartered for about a 30-day period beginning about October 1. In general two of the vessels will scout for albacore and make scientific observations out to about 500 miles offshore between the 66°-63° F isotherms and two of the boats between the 63°-60° F isotherms (see accompanying sea surface temperature chart), with the objective of "staying on the fish" as they move offshore. Catch information and environmental observations will be radioed ashore three times each day and will be incorporated into the albacore fishing information broadcasts prepared by NMFS and transmitted on AM and SSB frequencies by radio station WWD and AM frequencies by cooperating broadcast outlets along the west coast--KMY Tiburon, KRED Eureka, KYNG Coos Bay and KMX Astoria--(Bulletin 70-1 gives times and frequencies), and by the Western Fishboat Owners Association on SSB frequencies.

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